November 11, 2005

MEMORANDUM

SUBJECT: Potential Federal CERCLA Liability for use of the Gentilly Landfill for debris operations from Hurricane Katrina, FEMA-1603-DR-LA, ESF#10 Task Order.

TO: John Connolly
Infrastructure Branch Chief
Federal Emergency Management Agency

FROM: George Pavlou, Senior Federal Official
New Orleans Field Office
U.S. Environmental Protection Agency

EPA has been asked by FEMA to provide a technical analysis and recommendation for the current and continued use of the Gentilly Landfill ("landfill"), located in New Orleans, Louisiana for federal debris operations from Hurricane Katrina. Questions from federal elected officials and others have specifically raised the issue of potential Superfund liability of federal agencies engaged in hurricane response for future cleanup of the landfill. The U.S. Army Corps of Engineers has the lead for Hurricane Katrina debris removal.

As an initial matter, the Gentilly Landfill currently receiving construction and demolition debris (C&D) and wood waste from Hurricane Katrina was permitted in December 2004 by LDEQ as a Type III (RCRA Subtitle D) landfill to accept this type of waste. The landfill was designed to accomodate large volumes of Type III waste, consistent with the City's assessment in the 1990s of its long-term disposal needs. The permit allows placement of up to 100 feet of Type III waste over the closed area of the historic Gentilly Landfill (some seventeen acres have not yet been closed, but are not part of the current disposal operations). The historic (below-ground) landfill (also RCRA Subtitle D) was closed with a three-foot clay soil cover; recent borings confirmed placement of the required cover over the old landfill. In short, current use of the Gentilly Landfill for disposal of large quantities of C&D debris and wood waste from Hurricane Katrina appears to be consistent with the types and volumes of wastes for which it was designed and permitted. The landfill operations are normal. Waste inspection is reasonable. Landfill capacity is currently available to absorb the waste being hauled to the site. Traffic flow is reasonable.
There is not a way to protect against future Superfund liability absolutely, particularly liability for a landfill, whether historic or modern, municipal or private. However, there are certain practical, policy, and legal thresholds that lead to selection of Superfund as the appropriate response authority for a given site.

This memo will review the current status of the Old Gentilly Landfill under RCRA (including current permits and corrective actions), current use of the landfill for disposal

of hurricane debris, and the consistency of current usage with applicable regulatory authority. It will also review prior assessment of the landfill under CERCLA. Finally, it will offer recommendations for current usage which should avoid a release of hazardous substances that would necessitate Superfund response.

I. Background

The Gentilly Landfill is owned by the City of New Orleans and operated by a City contractor, Durr Heavy Construction Company. It is located in an industrial area of New Orleans, Louisiana, in Sections 43 and 44 of Township 12 South, Range 12 East. The approximately 230-acre site is surrounded by the K.C. Landfill (an active landfill) and commercial industries; several automobile salvage yards are located nearby. The industrial area is situated within low-lying wetlands in eastern New Orleans.

The Gentilly Landfill began operations as a pre-Subtitle D sanitary landfill in 1964 accepting "nonhazardous solid waste,... industrial and commercial wastes including sanitary sewage sludge with small quantities of unknown hazardous waste, and small quantities of unknown hazardous waste mixed with industrial/commercial/municipal wastes..." In 1980, the Louisiana Department of Natural Resources issued a Compliance Order requiring closure of the facility by 1985. Through a series of amendments, the closure date was extended. Although the landfill had not completed closure, the facility stopped receiving waste in December of 1986.

In 1991-92, the City of New Orleans conducted a comprehensive Landfill Siting Study to identify the best site within Orleans Parish for development of a City-owned solid waste management facility. A Public Advisory Committee including citizens, environmentalists, and business and technical leaders from the community was formed to advise and participate in the site selection process. The Old Gentilly Landfill was not considered during the Landfill Siting Study, since it was undergoing closure. However, subsequent review of the Old Gentilly location against the criteria developed by the Landfill Siting Study and the two alternative sites it proposed led to a renewed interest in utilizing the Old Gentilly location.

In 2000, a request to permit a new construction and demolition debris (C & D) landfill was presented to the City of New Orleans Planning Commission. During the site review process, the Gentilly Landfill was determined to be the most favorable location. The City proposed to develop a new C & D landfill over the old landfill, which would also generate the funds to pay for the closure of the remaining unclosed portions of the old landfill. The City applied for the permit on June 19, 2002. LDEQ issued the C & D permit on December 28, 2004. The permit requires the closure of the remaining acreage of the old landfill by December 28, 2007.

The new landfill was scheduled to open in 2005. Although the new landfill had not fulfilled all of the permit requirements required to begin accepting waste (such as fencing, completion of storm water diversion berms, and the posting of financial assurance), LDEQ issued an Order Authorizing Commencement of Operation to

accelerate opening the facility to accept C & D waste and wood wastes associated with Hurricane Katrina.

II. Status of Gentilly Landfill under the Resource Conservation and Recovery Act

The Gentilly Landfill is a municipal solid waste disposal facility regulated primarily by the State of Louisiana under state law. It is not a hazardous waste disposal facility subject to regulation under RCRA Subtitle C by EPA or a RCRA-delegated State.

A. Closure.

Section 6945(a) of RCRA prohibits open dumping and addresses the closing of open dumps; however, it allows a State to put an open dump on a compliance schedule. It appears that LDEQ put Gentilly on a compliance schedule, issuing an order requiring closure, in phases, by June 1985. LDEQ then allowed a series of closure plan revisions and extensions of the closure date. The post closure care conditions included monitoring ground water for three years.

The landfill area has been closed in phases and covered with a two to three foot clay final cap on all but about seventeen acres. Currently there is a distance of 1000-2000 feet between the seventeen acres and the area now receiving waste. Standard requirements for post-closure care ground water monitoring were completed. Some of the groundwater monitoring wells installed on or near the landfill have been damaged and are no longer useful as a water quality monitoring system.

The old landfill cap consists of three feet of compacted clay. This clay cap meets the new landfill bottom liner engineering design for RCRA Subtitle D Type III C&D landfills in Louisiana.

B. Type III Landfill Permit

On June 19, 2002, the City of New Orleans applied to LDEQ for a Type III landfill permit, allowing disposal of construction/demolition debris, wood waste, and exempt waste. In a series of exchanges between the City and LDEQ in 2002-2004, LDEQ required additional activities toward closure and additional information prior to approving the permit application. LDEQ approved the Type III permit and issued it to the City of New Orleans on December 28, 2004. It allows for disposal of Type III waste on 157 acres, on the footprint of the previously closed landfill, to a peak height of 130 feet. The Type III permit appears to incorporate the compliance schedule for closure, which requires compliance with the closure order by 12/28/07.

III. EPA Site Visit: Nov. 6-8 2005.

EPA Region 6 RCRA staff visited the Gentilly Landfill on November 6-8, 2005. The purpose of the visit was to gather data regarding current facility operation (waste delivery, waste inspection, waste processing, waste rejection, waste disposal and potential

for off-site migration of contaminants (ground water monitoring system, surface storm water drainage to and from the landfill, location of surface water bodies adjacent/near the site). The staff also looked for evidence of current landfill activities on the underlying landfill liner/old landfill clay cap. Finally, the staff looked at areas along Almonaster Avenue between Read Boulevard and the Sage Street Canal for evidence of surface water contamination and evaluate its relation to landfill operations.

A. Operations of the Gentilly New Type III Landfill

1. Waste Hauling, Waste Receipt at the Landfill.

Waste accepted at this landfill is C & D waste from authorized areas in the authorized Parishes. Wastes are hauled to Gentilly landfill in haul trucks of various sizes. The amount of waste coming in is determined on the basis of truck volume. At the waste pickup location in the City/Parish, each truck is provided with tracking identification number from FEMA/Corps of Engineers. As trucks come in, they pass through the screening gate check points where the landfill waste is screened.

2. Waste Volume and Waste Type Determination.

During the site visit, EPA staff observed the following site operation procedures in action:

Entrance gate screening. As the waste hauling trucks arrived from Almonaster Blvd., they were flagged to enter the Gentilly landfill by a traffic controller at the entrance road to the landfill. At the screening gate at the Observation Tower, there are a total of four lanes. As the trucks approached the inspection stands, they removed the cloth covers over the waste. One of the lanes was dedicated for trucks hauling in White Goods (refrigerators, washers, air conditioning units). The trucks in each lane approached the four inspection stands, located on the side of each approach lane at the landfill gate. These stands were each occupied by two to four waste inspectors from FEMA, Corps of Engineers and Contractors and constitute the first line of waste inspection and volume verification. The inspection for waste volume, waste type and authorization for waste disposal were carried out at the first waste screening check point located at the landfill's entrance gate point.

The waste inspection was routinely carried out to ensure that only the waste authorized to be disposed at this landfill is allowed to come in. The unauthorized waste is rejected at this landfill. One lane is dedicated to White goods that have to be cleaned of Freon and food waste, crushed and then recycled. The waste inspectors in the other three lanes checked the incoming C&D waste and cleared it for disposal, or, if the waste was not acceptable, the truck driver was instructed to return the waste back to the source. The procedure for waste inspection are those of the City of New Orleans landfill operations contractor and those spelled out by FEMA and Corps of Engineers and their contractors. The landfill operator's waste inspection procedures are to be found in the Site Operations

Plan contained in the landfill permit application (Site Development Plan) submitted by the City of New Orleans engineering consultant that prepared the permit design site development plan.

Waste Unloading Inspection Once the waste was accepted and cleared at the gate, the waste loaded haul trucks were directed to the landfill disposal area's working face. At the working phase, the trucks unload the waste. As the waste was unloaded, four waste spotters inspected the waste to assure that it is Type III (C&D) waste. If the waste spotters found that the unloaded waste was not C & D waste, then the truck was reloaded with the unacceptable waste and the driver ordered to haul it back to the source. Acceptable waste was unloaded, spread around the disposal site with the spreader/compactor tractor equipment and compacted in place to the desired density. The waste compacted in place was then covered by wood mulch (alternate) cover material.

White Goods The trucks carrying white goods were directed to the white goods unloading area. At that location, the Freon fluid was first removed from the white goods. The white goods were then shaken to dislodge the food waste after which they were loaded into a huge mechanical compactor. The compacted white goods were removed from compactor and placed on the ground in groups. They were then loaded into haul trucks for offsite transportation to steel recycler dealers.

Exit Inspection As the trucks left the landfill, they drove to the last check point where FEMA, Corps of Engineers staff and Contractors again inspected the vehicles to make sure that the vehicle had emptied the waste, or, when wastes had been rejected, that they were still full of waste. There were traffic control persons to guide traffic at the intersection of the exit and entrance to the landfill.

B. Potential for Release of Contaminants

1. Air

Given the nature of historical waste disposal and the construction of the cap at closure, there is no basis to anticipate airborne emissions from the old landfill that would pose health concerns. Methane is not expected to pose human health concerns during landfill operations or post closure care.
The current landfill has water trucks that spray water on the roads to suppress dust particles that trucks wheels may produce and become air borne. There is potential for evaporative mass transfer of lighter/moist waste materials by volatilization or diffusion transport to the air but given the type of waste being received and disposed of at this landfill, the volume and mass of volatile material is small. Consequently, the mass transfer by this pathway is of limited concern to the impact of human health and the environment.

2. Surface Water

The landfill has installed a permanent storm water run-on/run-off system in the northern and eastern sides of the landfill. A similar berm system will be constructed on the southern side, parallel to the Inter-coastal Canal levee; and the western side of the landfill. There are no temporary internal berms.

The run-off from the landfill will be protected by the perimeter berms constructed to isolate the rainfall which falls on the waste and prevent it from leaving the landfill area and co-mingling with the storm water from elsewhere. This is an engineering design condition of this landfill. Currently, there is no evidence that the landfill being operated above the old landfill has caused surface water contamination away from the landfill. Landfill engineering settlement and stability analysis were conducted during the permitting process to demonstrate that the landfill will not be unstable or cause unacceptable compression and settlement.

3. Leachate

The community has expressed a concern that deposition of waste on top of the cap of the closed landfill will result in compaction and seepage of leachate from inside the closed landfill, and EPA was asked to follow up on a report of a surface release of yellow liquid in the vicinity of the landfill.

Release of leachate from the closed landfill to surface soil or water is not supported by engineering analysis. The historical landfill closure plan, cap design, and plan for the new landfill were designed to sustain 100 feet of C&D debris to be placed on the new landfill. The geotechnical investigation based on the soil borings from the old landfill waste indicate that the material in the old landfill has consolidated. It consists of low permeability ash with negligible material that would undergo loss compression. Material in the old landfill is thus unlikely to expel fluids, particularly not leachate in such quantities as to flow some distance from the landfill or, as discussed below, to contaminate ground water. The weight loading of this landfill with Katrina waste and potential squeezing of leachate that would contaminate ground water or surface water is of limited concern.

There was no evidence that the drainage discharges from the lands adjacent to the landfill that were shown in the videos submitted to EPA are pollutant fluid being released from the current or the old Gentilly landfill. Observation of the general vicinity of the landfill revealed storm water drainage and conveyance ditches overloaded with pollutants of all kinds from many sources. Polluted ditches were observed in the area of Almonaster Blvd., the Industrial Canal, Read Boulevard and Sage Street.

4. Ground Water

The ground water in the Gentilly landfill vicinity is characterized by LDEQ to be of poor water quality (Class 3 non-potable groundwater). Ground water monitoring data shows low concentrations of heavy metals and some limited organic constituents, including

acetone. The ground water monitoring results should be read with caution based on a number of factors.

First, the monitoring wells have damaged well head protection pads and have developed annulus vertical flow paths in the well intake screened zone. This allows polluted surface water to infiltrate into and pollute the shallow ground water aquifer. Second, there is the potential for laboratory contamination. Third, there are numerous potential industrial sources in the area that may cause ground water pollution. These include other landfills, dumps, automotive junk yards and polluted storm water and industrial discharge sewers and conveyance ditches/canals, some of which have a higher potential for contaminant leaking/seeping into ground water than the Gentilly facility. Contaminants in ground water cannot be traced solely to the Old Gentilly landfill.

According to LDEQ staff, sample testing of ground water fluids found in the old Gentilly landfill show chemical compounds found to be of low concentrations when compared to those normally left in place in underground storage tanks' site remediation.

5. **Potential for New Waste to Commingle with Old Landfill Waste**.

The new Gentilly Type III Landfill has a three feet of compacted clay liner that functions as the final cap of the old landfill, as well as the bottom clay liner of the current landfill. This is sufficient to act as liner/barrier to commingling of solid waste. Although there is potential that clay liner between the old landfill and the New Landfill C&D waste may be damaged, if it is damaged little solid waste would move across it. In the clay cap areas that have not yet received waste, there was no evidence of shear failure damage due to weight of waste being deposited. If such damage did occur, some rainfall leachate from the new landfill may migrate and commingle with the leachate in the old landfill; the consequence for pollution from such commingling would have minimum impact on existing class III ground water quality. The waste in the old landfill has been compacted and settled over the years that the landfill was in operation. Evidence on the ground does not show that the clay layer liner separating the old landfill ash waste has been broken. Consequently, at the present time, there is no evidence that the current Type III C& D, Katrina waste is co-mingling with the old ash waste.

IV. CERCLA Liability: the RCRA Deferral Policy and the CERCLA Hazard Ranking System

This section discusses two thresholds a site must cross in order to become a Superfund Site. Among federal environmental statutes, CERCLA is a response program to be invoked when environmental harm is not adequately addressed by state and/or federal regulatory programs. In the case of a landfill, facility operation in compliance with the facility's permit and timely implementation of actions required under a corrective action plan/order, together with the provision of adequate financial assurances, is expected to prevent actual or potential harm to the environment. Generally, the facility owner or

operator or the holder of state or federal permits under RCRA, the Clean Air Act, Clean Water Act, etc. controls environmental damage from an operating facility.

EPA announced a RCRA Deferral Policy in a series of Federal Register Notices explaining regulations and procedures for ranking sites on the National Priorities List of known releases of hazardous substances throughout the United States, to be addressed under CERCLA. The RCRA Deferral Policy establishes criteria for excluding most RCRA Subtitle C hazardous waste facilities from the National Priorities List (NPL), on the theory that such sites should be adequately addressed under RCRA; it does not specifically address sites such as Old Gentilly that fall outside the purview of RCRA Subtitle C.

Even if a facility subject to permit or corrective action experiences an actual or potential release of hazardous substances, EPA looks initially to the permittee to comply with the permit or use a corrective action plan to correct the problem. While not legally prohibited from bringing action under CERCLA whenever the jurisdictional elements are present, EPA generally does not initiate CERCLA action unless the relevant federal and state regulatory and state superfund authorities believe that federal CERCLA action. In that instance, a facility would be referred to the federal CERCLA program, for short-term attention under a removal order or, for longer-term, more complex sites, for placement on the National Priorities List.

The Hazard Ranking System is a scoring system EPA uses to determine whether a site should be placed on the NPL. The HRS evaluates the extent and potential for release of hazardous substances from a site through the ground water, surface water, air, and soil exposure pathways, also examining the quantity of waste and degree of risk posed by the site.

Review of Region 6 CERCLA Site Assessment Data

EPA Region 6 has conducted two preliminary screenings of the Gentilly Landfill Site. A Preliminary Assessment and Site Inspection (PA/SI) in 1980-81 to determine whether the site warranted further investigation for removal action or placement on the NPL. The site was classified as “No Further Remedial Action Planned” and was subsequently archived in the CERCLIS database. The site was re-evaluated by LDEQ in 1997 and a Site Inspection was conducted. The SI focused on the collection of ground water samples from on-site monitoring wells and soils samples from the landfill surface.

Hazardous substances detected in the surface soil and ground water samples collected during the SI include aluminum, arsenic, chromium, copper, lead, magnesium and vanadium. Acetone was also detected in the samples. Hazardous substances that meet observed contamination criteria for the soil exposure pathway include aluminum, arsenic, magnesium, and vanadium. An observed release to the ground water pathway has occurred for aluminum and arsenic because these analytes were also detected in ground water samples at concentrations that meet observed contamination criteria. The SI did

not consider potential sources of groundwater contamination from other commercial and industrial facilities in the vicinity of the Site.

Evaluation of the site for NPL ranking for human (as opposed to ecological) receptors was conducted as a preliminary matter following the 1997 SI. The site received a score of 4.36, well below the site score of 28.5 needed for NPL proposal. One factor among many in the ranking was the lack of proximity to human receptors, given the location of the property in an industrial/commercial area, surrounded by other industrial and commercial (rather than residential) facilities.

Other Considerations

One of the primary reasons for placing a site on the NPL is to make the Hazardous Substance Trust Fund available for long-term response action. For Fund-lead sites generally, CERCLA requires that the State in which the Site is located fund 10% of remedial action costs, with the other 90% drawn from the Superfund. However, where the potentially responsible party is a political subdivision of a State, the State must agree to fund 50% of remedial action costs, with the other 50% drawn from the Superfund.

Recommendations

As noted above, there is not a way to protect against future Superfund liability absolutely, particularly liability for a landfill, whether historic or modern, municipal or private. However, current operations should take steps to continue good operating practices and document their activities, such as:

Post signs clearly identifying categories of acceptable waste;
Distribute leaflets to debris haulers clearly identifying categories of acceptable waste;
Document current operating safeguards
Publish written procedures for segregating waste streams prior to loading debris removal trucks, such that only non-hazardous materials are loaded into trucks bound for the non-hazardous waste landfill;
Develop and publish inspection procedures for truck-loading;
Document waste stream segregation and inspection of truck- loading;
Develop and publish procedures for inspecting debris for hazardous content prior to unloading at the landfill;
Develop and publish procedures for further segregation of hazardous from non-hazardous materials at the landfill prior to disposal;
Demarcate areas within the landfill/methods for disposal of non-hazardous waste so that it does not become commingled with hazardous wastes or substances, if any, previously disposed at Gentilly and remaining under the cap after closure.
Train/meet with landfill workers to reinforce adherence to acceptable operating procedures;
Verify with City that land use will remain industrial; determine status of zoning,

other institutional controls; prohibit future residential development
Determine the status of financial assurances for Type III permitted landfill;
Work with LDEQ to continue periodic ground water monitoring;
Determine status of prohibitions on ground water use; secure institutional controls prohibiting use if necessary.

The Corps of Engineers, lead agency for debris removal, should be notified of the importance of these operating practices.

ATTACHMENT A
Elements of CERCLA Liability

In order to make a prima facie case for recovery of response costs under CERCLA §107(a), the United States on behalf of EPA must show that:

1. There has been a release or threat of release (defined at 42 U.S.C. §9601(22))
2. of a hazardous substance (listed at 40 CFR §302.4)
3. from a facility (42 U.S.C. §9601(9))
4. by a person
5. who:
    - is the owner and operator of a facility;
    - owned or operated the facility at the time of disposal of a hazardous substance;
    - arranged for transport, treatment, or disposal of a hazardous substance; or
    - accepted hazardous substances for transport to a facility selected by such person for disposal or treatment.

If the United States seeks injunctive relief (response actions – generally site characterization and remediation) in addition to response costs, it must also show that the release of hazardous substances has created an imminent and substantial endangerment to human health or the environment.

If the United States on behalf of EPA brings a CERCLA action against a responsible party under Section 106 for injunctive relief and/or Section 107 for response costs, that party may bring contribution actions under Section 113 against others it believes to be potentially responsible as well. Parties receive protection by operation of law from contribution actions when they resolve their CERCLA liability through settlement with the United States. Contribution protection through settlement with EPA or the United States is the only mechanism to secure protection from third-party lawsuits. Generally under CERCLA, there is no mechanism to provide case-specific waivers of liability or other forms of no-action assurances.

Defenses from CERCLA Liability; Divisibility of Harm

Liability under CERCLA is commonly considered to be strict, joint, and several, consistent with the remedial purposes of the statute. The statutory defenses to liability are that the release of hazardous substance was caused by an act of God, an act of war, or an act of a third party. If a responsible party under CERCLA can show that the environmental harm is divisible, it may be liable for only that portion of the harm for which it is directly responsible, rather than jointly and severally liable for the whole.

Precedent

In U.S. v. City of New Orleans, et al., the United States brought a CERCLA action against the City for the cost of response at the Agriculture Street Landfill Site, a former municipal dump, landfill, recycling center, and location for open burning, operated by the City from the early 1900s to the early 1960s. The landfill was closed and then briefly reopened to receive debris from Hurricane Betsy in 1965. The property was later partially redeveloped with single and multi-family dwellings, an elementary school, and a community center. The United States sued the City and three private entities that owned or operated portions of the landfill or recycling operation, or disposed of hazardous substances (battery casings, etc.) at the landfill. The City, in turn, sued the U.S. Army Corps of Engineers under CERCLA § 113. Discovery in the case focused on the extent to which hurricane debris brought to the site by the Corps contained hazardous substances, particularly lead, arsenic, and polynuclear aromatic hydrocarbons which were the contaminants of concern at the Site. At this writing, settlement discussions are continuing, but no decision concerning COE liability has been reached in the case.